

# PRELIMINARY

## IPP UNITS 1 AND 2 BURNER IMPROVEMENT PROGRAM

### I. STEP ONE- OPERATIONAL IMPROVEMENT

1. PERFORM 2D AND 3D COMPUTER AIR FLOW MODELING OF BURNERS AND WINDBOX. (RJM)
2. BALANCE THE SECONDARY AIR FLOW FROM BURNER TO BURNER WITHIN PLUS OR MINUS 3%. (DESIGN AND INSTALL SHROUDS) (RJM, B&W)
3. INSTALL COMPARTMENTAL METERING TO THE WINDBOXES. (B&W)
4. INSTALL DUAL SCANNERS. (B&W)
5. RELOCATE AND ADD THERMOCOUPLES TO THE BURNERS. (B&W)
6. INCREASE COOLING AIR TO OUT OF SERVICE BURNERS AND MAINTAIN A MAXIMUM BURNER METAL TEMPERATURE OF 1250F. (B&W, IPSC)
7. TUNE THE BURNERS USING AGASS BASED ON AN AVERAGE EXCESS O2 LEVELS OF 3.2% PLUS OR MINUS 0.75%. (IPSC, B&W, RJM)

Balance - RJM

Dec 1991

### II. STEP TWO- EVALUATE BURNER AND UNIT PERFORMANCE

1. BURNER PERFORMANCE (LOI?, EYEBROWS? METAL TEMP.? BINDING?)
2. UNIT PERFORMANCE (EFFICIENCY?)

-WHO?  
-HOW?

### III. STEP THREE- BURNER DESIGN IN PARALLEL TO STEP ONE

1. RELEASE B&W FOR DETAIL DESIGN OF PROPOSED BURNER (ALREADY IN PROGRESS)
2. DO A FINITE ELEMENT ANALYSIS ON THE NEW BURNER. (ALREADY IN PROGRESS)
3. MATERIAL SELECTION (310SS VS 800H).
4. FLAME AERODYNAMICS (B&W, RJM)

### IV. STEP FOUR- INSTALL A TEST BURNER

1. BASED ON THE RESULTS OF THE FINITE ELEMENT ANALYSIS FABRICATE AND INSTALL A TEST BURNER ON UNIT 1 OR 2 DURING THE SPRING 1992 OUTAGE.
2. INSTRUMENT THIS BURNER AND COLLECT FIELD DATA.
3. EVALUATE BURNER THERMAL GROWTH, REGISTER OPERABILITY, AND IDENTIFY OPTIMUM THERMOCOUPLE LOCATIONS.

### V. STEP FIVE- FINALIZE BURNER DESIGN

1. BASED ON FIELD DATA FINALIZE BURNER DESIGN

### VI. STEP SIX- EVALUATE RJM FLAME STABILIZER

1. RJM WILL BE INSTALLING FLAME STABILIZER SOMETIME NEXT YEAR AT ANOTHER UTILITY.
2. MONITOR PERFORMANCE OF THE FLAME STABILIZER.
3. EVALUATE PERFORMANCE.

### VII. STEP SEVEN- FINAL EVALUATION

1. COMPLETE EVALUATION OF ALL MODIFICATIONS.
2. COMPLETE EVALUATION OF BURNER DESIGN.
3. COMPLETE EVALUATION OF REPLACING THE BURNERS.